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DOCKET NO. K06-161131M/TBS

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AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraph from page 6, line 23 to page 7, line 13 with the following amended paragraph:

The outer peripheral portions of the respective shafts 2b of the cross shaft member 2 are formed with inner ring race portions 2c with which the cylindrical rollers 3 are brought into rolling contact and the respective shafts 2b of the member 2 are made to function as inner ring members of corresponding ones of the roller bearings 5. The base portion 2a of the cross shaft member 2 is provided with shoulder portions 2d each having a section in a round-shape in which a center of a radius of curvature is set to an outer side of the base portion 2a and a center portion thereof is recessed to a side of a center portion of the base portion 2a, at respective intervals between necks (shaft necks) of two two of the shafts 2b contiguous to each other. An inside of the roller bearing 5 is constituted to be able to be hermetically sealed by attaching a seal member in a ring-like shape (not illustrated) to the shoulder portion 2d.

Please replace the paragraph at page 8, lines 9-17 with the following amended paragraph:

The cross shaft member 2 and the bearing cup 4 are constituted by using bearing steel of ~~STWJ2-2~~ or the like or a steel material which is carburized or carbonitride by subjecting the material steel to high-frequency quenching or the like. Further, the race portion 2c and the shoulder portion 2d of the cross shaft member 2 and the race portion 4a of the bearing cup 4 are finished to predetermined accuracy by being subjected to finishing by cutting, machining, grinding or polishing.

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Please replace the paragraph from page 9, line 22 to page, 10, line 10 with the following amended paragraph:

As has been apparent from Fig. 2, each race portion 2c after roller burnishing is ensured with a hardness equal to or larger than Hv700 at a depth of up to about 0.4 mm at least 0.2mm from the surface and is considerably harder than a product before roller burnishing and a shot-peened product. Further, at a depth less than 0.1mm from surface, the surface hardness of the shot-peened product is more or less harder than that of each roller burnished race portion 2c, the shot-peened product is deteriorated in the surface roughness after working (the surface is roughened) and needs postworking for smoothing the surface for making the cylindrical roller 3 roll in an oil-lubricated state. Specifically, according to the shot-peened product, it is necessary to remove a surface layer thereof at a depth of about 0.05mm from the surface by the postworking.

Please replace the paragraph from page 10, line 12 to page, 11, line 6 with the following amended paragraph:

In contrast thereto, according to each roller burnished race portion 2c, since the surface is pressed by point contact with the mirror finish ball in roller burnishing, the surface hardness can be hardened while improving (reducing) the surface roughness by smoothly deforming the surface, and contrary to the shot-peened product, it is not necessary to subject the surface to postworking. Therefore, the surface hardness of each race portion 2c is substantially harder than that of the shot-peened product. Further, according to a test by the inventor of the present invention application, it has been confirmed that the surface roughness of each race portion 2c by roller burnishing can be made to be equal to or less than a half of

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that before working in a maximum height roughness (R_{max}) and a surface hardening coefficient can be increased compared with that before working. In this way, the fatigue strength of the race portion 2c can be increased by improving the surface hardening coefficient of the race portion 2c and increasing the surface hardness and surface originated flaking (surface layer flaking) at the race portion 2c can effectively be restrained from being brought about.

Please replace the paragraph from page 13, line 12 to page 13, line 5 with the following amended paragraph:

Further, although according to the above-described explanation, an explanation has been given of the constitution in which the center of the radius of curvature is set on the outer side of the base portion 2a and the shoulder portion 2d 2a having the section in the round-shape in which the central portion is recessed to the side of the center portion of the base portion 2a is subjected to roller burnishing, according to the invention, each shoulder portion between two of the shaft neck portions of the cross shaft member (cross or spider) phases of which are shifted from each other by 90 degrees may be subjected to roller burnishing and the shape of the shoulder portion is not limited to the above-described at all. Specifically, there may be constructed a constitution in which a shoulder portion having a section in a linear shape or a shoulder portion having a section in a round shape in which the center of a radius of curvature is set to a center side portion of a base portion such that a central portion thereof bulges to an outer side of the base portion is subjected to roller burnishing.

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Please replace the paragraph at page 14, lines 7-23 with the following amended paragraph:

Further, although according to the above-described explanation, an explanation has been given of a case of constituting the cross shaft member 2 and the bearing cup 4 by using bearing steel, the invention is not limited thereto but there may be constructed a constitution in which a cross shaft member or the like is constituted by carbon steel for mechanical structure of S54C or S55C or the like having a carbon content of, for example, 0.42 weight % or more, or a steel material hardened to a hardness of about HRC55 by subjecting the material steel to a heat treatment or a high-frequency quenching treatment and the race portion and the shoulder portion is subjected to roller burnishing. By using carbon steel for mechanical structure in this way, a cross shaft member having a fatigue strength substantially comparable to that of the conventional product comprising bearing steel and restraining material cost can easily be constituted and the cross joint can be fabricated at low cost.